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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/519,216

09/01/2005

Ping Wang

089498-0436

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10/01/2007

ROETZEL AND ANDRESS  
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EXAMINER

PETERSEN, CLARK D

ART UNIT

PAPER NUMBER

1657

MAIL DATE

DELIVERY MODE

10/01/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/519,216

Applicant(s)

WANG ET AL.

Examiner

Clark D. Petersen

Art Unit

1657

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133) Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specification***

Applicants have not included Cross-references to related applications as a first paragraph of the instant specification.

Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 6-13, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Cremonesi (US 4,338,401, issued 6 July 1982)

Cremonesi teaches a method of incorporating proteins into polymeric fibers. He teaches that one can incorporate horseradish peroxidase into cellulose fibers by mixing the cellulose with horseradish peroxidase and a vinyl functional group capable of modifying the peroxidase in an aqueous solution. The derivatized peroxidase/fiber can then be polymerized by irradiating the solution with ultraviolet light; the vinyl group modifies the peroxidase, allowing it to attach to the cellulose fiber. A solid fiber with peroxidase activity is obtained (see Example 1, col. 4, lines 20-57, for example).

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Therefore the teachings of Cremonesi et al are deemed to anticipate instant claims 1, 4, 6-13, and 15.

Claims 1, 3-11, 13, 16, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsumoto et al (US 4,371,612, issued 1 February 1983).

Matsumoto et al teach a method of attaching proteins directly to a polymeric fiber. The fiber can comprise vinyl aromatics like divinyl benzene for example (see col. 2, lines 27-56, for example). The proteins can directly adsorb onto the surface, or can be covalently bonded through an intermediate linking group such as glutaraldehyde (see col. 5, lines 8 to col. 6, line 2, for example). The protein to be immobilized can be an antibody, a hormone, or an enzyme; in particular, glucose oxidase may be used (see col. 4 line 45 to col. 5 line 7 for example). Additionally, phospholipase D may be attached to fibers. Phospholipase D needs the cofactor  $\text{Ca}^{2+}$  for efficient activation (see Greco et al, Biochem Biophys Res Comm, 2006). Matsumoto et al immobilize phospholipase D on acrylonitrile fibers, and add calcium chloride in solution, before adding the phospholipid substrate (see Example 8, col. 19-20, for example).

Therefore the teachings of Matsumoto et al are deemed to anticipate instant claims 1, 3-11, 13, 16, and 17.

Claims 1-3, 5, 8, 9, 11, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Tennent et al (US 6,099,960, issued 8 Aug 2000).

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Tennent et al teach a nanofiber comprising carbon. This nanofiber is functionalized so that it may immobilize active groups. In particular the active groups can be enzymes, antibodies, or antigens (see col. 10, lines 16-41, for example).

Therefore the teachings of Tennent et al are deemed to anticipate instant claims 1, 2, 5, 8, 9, 11, and 13.

Claims 1-3, 5, 8, 9, 11, 13, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Greiner et al (US 6,667,099 B1, published 8 Feb 2001 as WO01/09414).

Greiner et al teach a method of electrospinning nanofibers from polyolefins, for example. These fibers are then coated with a second layer; this second layer can comprise the protein collagen for example (see claims 1-9). These hollow nanofibers can also contain other proteins, such as insulin, a hormone. Proteins such as collagen or insulin can be attached by appropriate functional groups on the nanofiber (see claim 15; see col. 4, lines 28-47, for example).

Therefore the teachings of Greiner et al are deemed to anticipate instant claims 1-3, 5, 8, 9, 11, 13, and 14.

### ***Conclusion***

- No claims are allowed.

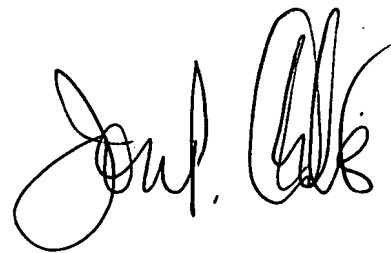
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clark D. Petersen whose telephone number is (571)272-5358. The examiner can normally be reached on M-F 8:30-5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jon Weber can be reached on (571)272-0925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CDP  
9/20/2007

A handwritten signature in black ink, appearing to read 'Jon Weber', with a stylized flourish at the end.

**Jon Weber**  
**Supervisory Patent Examiner**